

Waves of the Future:

The first five years of the 4-H study
of positive youth development

Tufts
UNIVERSITY



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Erin Phelps, and Colleagues
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Acknowledgments

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We acknowledge and value the contributions of faculty and staff from numerous land-grant universities in the Extension/4-H system who have been instrumental in gathering data and sharing the findings. They are:

University of Alaska

University of California

Colorado State University

University of Delaware

Purdue University

University of Massachusetts

University of Minnesota

Mississippi State University

University of Missouri

Lincoln University

University of Nebraska

Oregon State University

Rutgers University

North Carolina State University

North Dakota State University

Texas A&M University

Washington State University

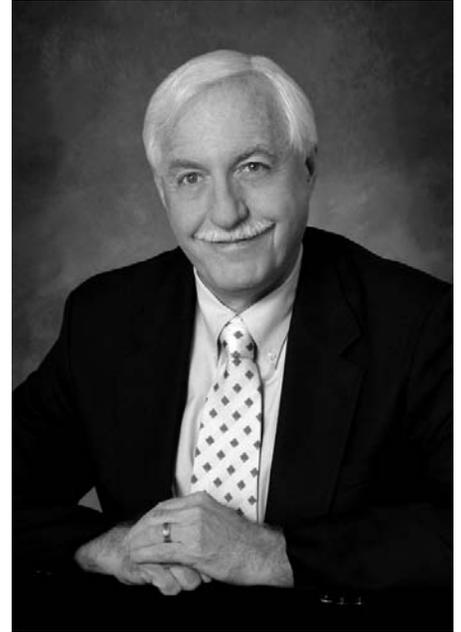
University of Wyoming

Message From Richard M. Lerner

Director, Institute For Applied Research In Youth Development

I am pleased to share in this report the results of the first five waves of research in the 4-H Study of Positive Youth Development. I believe that this research embodies the goals of applied developmental science and of the Institute for Applied Research in Youth Development, that is, to conduct good science that enhances the abilities of practitioners, parents, policy makers, and young people themselves to promote positive human development. The results of the 4-H Study to date provide strong evidence that when the strengths of youth are aligned with the resources for healthy development in families, schools, and communities, youth thrive.

The data set underscores that all of us—as individuals, family members, professionals, advocates for youth, or members of the nation’s diverse communities—have it within our power to enhance the lives of all young people. I believe this message is vital and timely. I am honored that National 4-H Council and the 4-H system have afforded my colleagues, students, and me the opportunity to ground this message in strong developmental science.



Richard M. Lerner, Ph.D.

*Bergstrom Chair in Applied Developmental Science
Director, Institute for Applied Research in Youth Development*

Message From The Advisory Board

The amount of research on positive youth development (PYD) is small, especially when compared to research about the problems of adolescents. The largest portion of research on adolescent development proceeds from the assumption that adolescents are broken or soon will be broken. A new perspective, that of positive youth development, counterbalances the assumption of broken youth with the perspective of youth as developing with many assets who can be guided to become positive and constructive contributors to society. While some problems may exist, the goal of the positive youth development perspective is to promote positive outcomes. This idea is in contrast to a perspective that focuses on punishment and the idea that adolescents are broken.

The 4-H Study of PYD is being conducted at the Institute for Applied Research in Youth Development at Tufts University by Richard M. Lerner, Jacqueline V. Lerner, Erin Phelps, and their colleagues and students. This research constitutes a first, major step toward filling the research gap concerning PYD. The 4-H Study Advisory Board believes that the study constitutes a milestone in developmental research. The 4-H Study has shown, for the first time, that PYD exists, and that youth development programs can play a major role in promoting PYD. The methods that the researchers employ for design, data analysis, and interpretation of results are state-of-the-art.

The 4-H Study is a landmark investigation. If the researchers continue on their scientific path, they will have produced a study of truly historic importance. The study will provide compelling information about the special and vital role that 4-H may play in the lives of America's young people.

Alexander von Eye, Ph.D.

*Professor of Psychology, Michigan State University
Chair, The 4-H Study of Positive Youth Development Advisory Board*

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Introduction

Early researchers on adolescent development started out with the wrong set of assumptions (Lerner & Steinberg, 2004). Most, including the founder of the field, G. Stanley Hall (1844–1924), viewed adolescents in terms of what they lacked when compared to mature adults (Hall, 1904). For decades this perspective subtly influenced how researchers, teachers, parents, youth workers, and public policy makers looked at this period of development. It influenced what they thought they could expect from teenagers, and how they would interpret what teenagers said and did.

Researchers and clinicians viewed adolescence as a time of “*sturm und drang*”—storm and stress—when emotional turmoil was a necessary step toward maturity. Hall drew upon Darwin’s writings on evolution for perspective (Hall, 1904). Hall interpreted each person’s maturation as a retelling of how mankind evolved from primitive beasts to civilized social animals, with the teenage years reflecting a critical point in that story of transformation. Anna Freud (1969) wrote of emotional upheavals within adolescents and their close relationships with family and friends. Erik Erikson (1959) described the adolescent’s identity crisis as he or she struggled to achieve a more mature state.

In short, early researchers and clinicians based their observations and theories on the underlying assumption that adolescents are inherently “at risk” for behaving in uncivilized or problematic ways; they were “broken” in some way and needed repair. Given that premise, that is largely what they saw.

The Emergence of the Positive Youth Development (PYD) Perspective



This frame of reference shifted in the early 1990s as growing numbers of researchers viewed adolescence through the lens of systems theories that look at development throughout the life span as a product of relations between individuals and their world (Lerner, 2005). One key aspect of this new focus was plasticity: the potential that individuals have for systematic change throughout life. This potential is critically important because it says that adolescents' trajectories are not fixed and can be significantly influenced by factors in their homes, schools, and communities (Lerner, 2006).

Despite the manifold problems often seen during adolescence—drug and alcohol use and abuse, unsafe sex and pregnancy, school failure and dropping out, crime and delinquency, depression and self-destructive behaviors—most young people do not have a stormy adolescence (Lerner, 2005). Similarly, while teenagers

spend much more time with their peers than with their parents and may, sometimes for the first time, openly challenge their parents' actions and beliefs, they value their relationships with their parents tremendously. They also tend to incorporate their parents' core values in such areas as social justice, spirituality, and the importance of education into their own values. Indeed, most adolescents select friends in part because they share these core values and similar perceptions of the world.

Integrating the theoretical ideas about the plasticity of adolescent development and the practical findings about the multiple pathways children take through adolescence led to the framework now known as Positive Youth Development (PYD), which views young people as resources to be developed rather than as problems to be managed (Lerner, 2005; Damon, 2004).

Features of Positive Youth Development (PYD)

The PYD approach builds upon what have become known as the "Five Cs": Competence, Confidence, Connection, Character, and Caring (Lerner, et al., 2005).

Researchers theorized that young people whose lives incorporated these Five Cs would be on a developmental path that demonstrates a Sixth C: Contributions to self, family, community, and the institutions of

a civil society. In addition, young people whose lives contained lower amounts of the Five Cs would be at higher risk for a developmental path that included personal, social, and behavioral problems and risks (Lerner, 2004).

The "5 Cs" of Positive Youth Development

"C"

Definition

Competence:

Positive view of one's actions in specific areas, including social, academic, cognitive, health, and vocational. Social competence refers to interpersonal skills (e.g., conflict resolution). Cognitive competence refers to cognitive abilities (e.g., decision making). Academic competence refers to school performance as shown, in part, by school grades, attendance, and test scores. Health competence involves using nutrition, exercise, and rest to keep oneself fit. Vocational competence involves work habits and explorations of career choices. Effective entrepreneurial skills may be one instance of vocational competence.

Confidence:

An internal sense of overall positive self-worth and self-efficacy.

Connection:

Positive bonds with people and institutions that are reflected in exchanges between the individual and his or her peers, family, school, and community in which both parties contribute to the relationship.

Character:

Respect for societal and cultural norms, possession of standards for correct behaviors, a sense of right and wrong, and integrity.

Caring/Compassion:

A sense of sympathy and empathy for others.

This relationship between PYD and risk/problem behaviors, however, was not seen as simple or uniform. The plasticity of development meant that some children from some homes, schools, and communities that lacked resources and supports were resilient and resistant to problems. A few who came from environments filled with resources and supports were drawn nevertheless into numerous troubles. But on the whole, PYD researchers hypothesized that the availability of activities supporting the Five Cs would help steer young people toward a life of successful contributions (Lerner, 2005; Benson, Scales, Hamilton, & Sesma, 2006).

The potential for change is a core strength of all youth—a strength that can be built upon. This strength is cause for optimism, for it means that the life paths of all children can be influenced in a good direction.

The contexts in which they live, learn, and play have resources to promote positive youth development. The resources can become the “social nutrients” young people need for healthy development. Researchers and practitioners agree that this concept of developmental assets is key to understanding how to foster PYD in homes, classrooms, and community-based programs (Benson, et al., 2006).

Studies suggest a link between PYD and the developmental assets associated with youth programs, especially programs that go beyond simple extracurricular activities to focus on promoting youth development.

The “Big Three” features of effective youth-serving programs (Lerner, 2004; Blum, 2003; Roth & Brooks-Gunn, 2003) are:

- Positive and sustained relationships between youth and adults
- Activities that build important life skills
- Opportunities for children to use these life skills as both participants and as leaders in valued community activities

Programs having these features may be termed youth development (YD) programs (Lerner, 2004; Roth & Brooks-Gunn, 2003). Key questions are:

- How can PYD theory be translated into specific practices that will help young people thrive?
- Do YD programs do this successfully?

To help address these questions, National 4-H Council sponsored research to understand the developmental assets already or potentially present in youth programs, especially the programs lead by 4-H.

The 4-H Study of Positive Youth Development

What We Did And Why We Did It

There are several ways to answer the question of whether involvement in specific out-of-school activities predicts positive growth and decreased risk during adolescence. The most powerful approach is to conduct a longitudinal study—research that follows young people over a significant period of time and records important changes within individual participants, as well as critical differences between participants at any given age. We used this approach in this study, which is funded by National 4-H Council through funds provided by *Philip Morris USA, an Altria Company*.

In The 4-H Study of Positive Youth Development we used a longitudinal sequential design (Lerner, et al., 2005). We began with fifth graders in the 2002–2003 school year, a time period labeled Wave 1. Since we knew that, as in all longitudinal studies, we would lose some participants over time, we added participants at other waves so that our statistical analyses would maintain their power.

Participants volunteered to get involved with or to skip out-of-school programs; they were not assigned to a program by the researchers. This distinction is important. We wanted study participants to mirror youth who were not part of the study, who chose their own levels of participation in such programs. To look for possible relationships between involvement in 4-H and positive youth development, we matched 4-H participants with non-participants on a variety of variables.

Wave 1 included 1,719 fifth-graders and 1,137 of their parents (Lerner, et al., 2005). They came from 13 states in rural, suburban, and urban areas in different parts of the country and represented a variety of racial, ethnic, and religious backgrounds. By the end of Wave 5, we had collected data from a total of 4,701 adolescents from 34 states. The following figures provide more details about the youth comprising the 4-H Study sample.

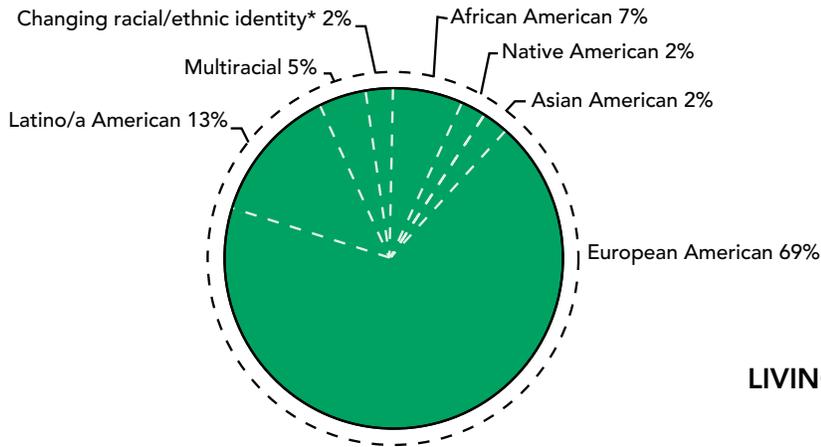
We gathered data through a student questionnaire and a parent questionnaire, and from school and government sources such as the U.S. Census (Lerner, et al., 2005). We explored whether each young person could select positive life goals, optimize what he or she needed to achieve those goals, and compensate for obstacles that stood in the way. This Selection (S), Optimization (O), Compensation (C) triad yielded what we call an SOC score that allowed us to predict important future positive behaviors and risk/problem behaviors. We also examined the youth activities outside of school, not only in 4-H but also in:

- sports
- arts
- school clubs
- religious groups
- community service
- other organizations.

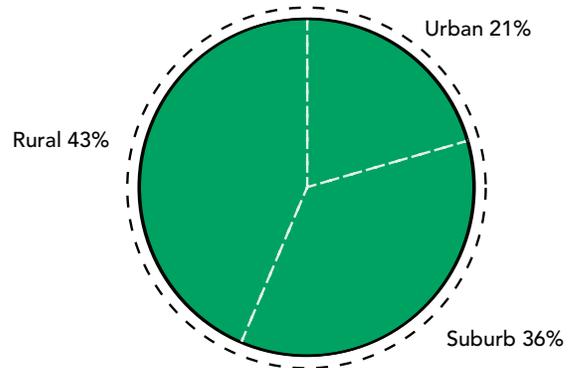
We looked as well at risk/problem behaviors, such as:

- smoking
- drinking
- bullying
- depression

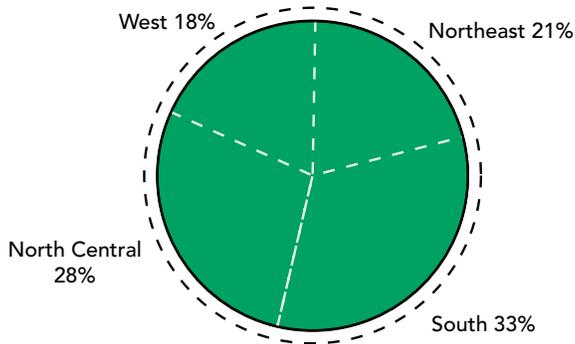
RACE/ETHNICITY IN THE TOTAL 4-H SAMPLE, WAVES 1-5



LIVING ENVIRONMENTS IN THE TOTAL 4-H SAMPLE, WAVES 1-5



GEOGRAPHIC DISTRIBUTION IN THE TOTAL 4-H SAMPLE, WAVES 1-5



**Some youth change, from one wave to another, the racial/ethnic label they use to describe themselves. The variation may reflect the developmental nature of racial/ethnic identity.*

Longitudinal Findings

Waves 1 through 5

The first Annual Report from the 4-H Study was issued in spring 2008 and summarized findings published or in press through eighth grade (Wave 4 of the study). The complete report can be accessed at: <http://www.4-hbrandnetwork.org/>. To prepare the data for these longitudinal analyses, we used information from students who participated in two or more years of the study. We developed models for several long-term trajectories (optimal, problematic, and gradations in between) involving PYD, Contribution, depressive symptoms, and risk/delinquent behaviors.

Youth who had participated in 4-H at some point during Grades 5 through 9 were significantly more likely to show the optimal trajectories for all four of the variables we assessed: high trajectories for PYD and Contribution; low trajectories for depressive symptoms and risk/delinquent behaviors. In fact, children who had participated in 4-H for at least one year by ninth grade were about 1.1 times more likely than children in other out-of-school-time (OST) programs to be in the highest PYD trajectory and more than 2.1 times more likely to be in the highest Contribution trajectory. As in the results from

Grades 5 to 8, we found that, through Grade 9, 4-H youth are substantially more likely than other youth to make contributions to their communities!

During Grades 5 through 9, youth show different levels of contribution. While almost three-quarters of young people move from low to moderate levels of contribution, only about 9% show the highest levels of contributions. The course of depression across Grades 5 through 9 takes several forms. Some youth (about 64%) show low levels, but substantial numbers of youth show variations from this optimal trajectory.

4-H youth are more likely than other youth to show the highest trajectories of PYD.



4-H youth are more than twice as likely as other youth to be in the highest trajectories of contribution to their communities.

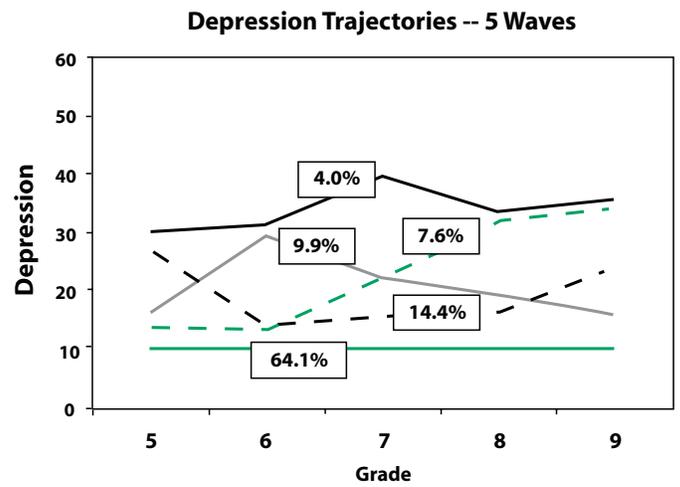
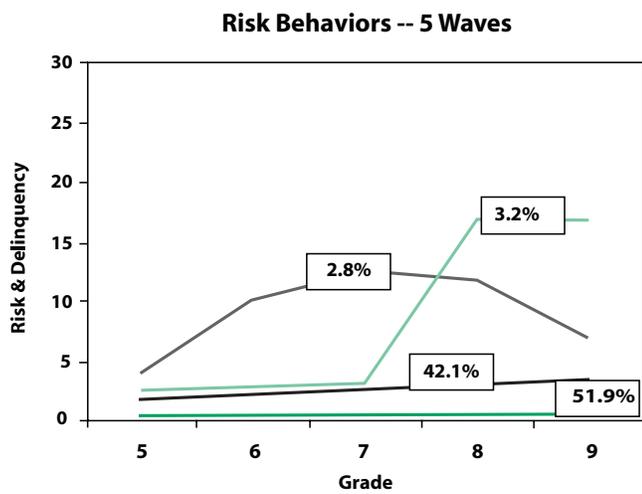
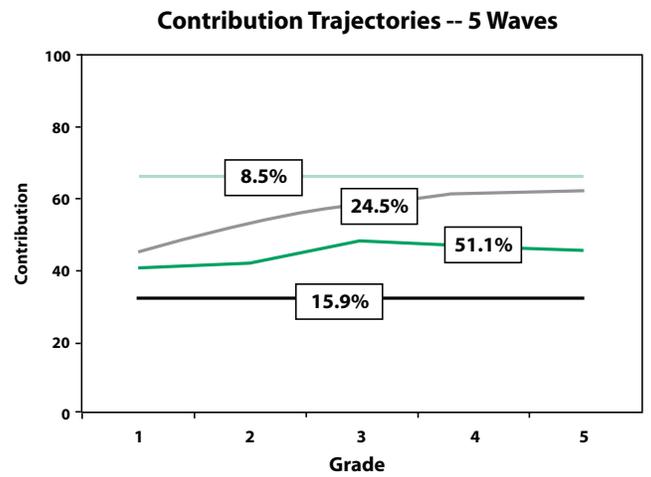
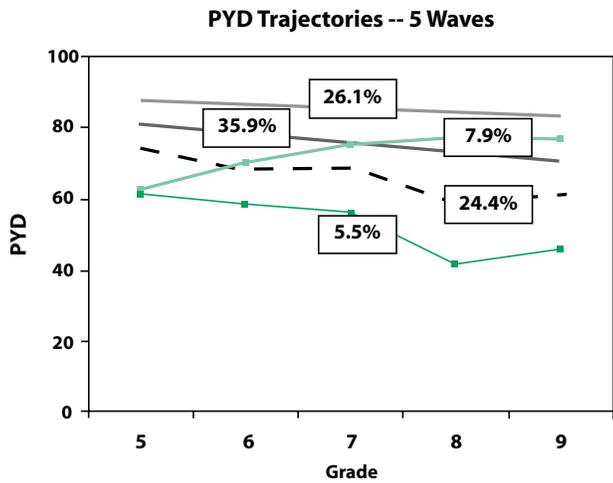


Across grades, more than 90% of youth reported no or very low levels of risk behavior. This finding counters the youth stereotype of storm and stress. Only about 3% of youth appear to be on a trajectory of increasing risk behaviors. While this group is small, it is important to pay particular attention to them in the upcoming waves. 4-H youth were 1.1 times more likely to be in the lowest trajectories for both depressive symptoms and risk/delinquent behaviors.

The true value of 4-H programs comes not from short-term results or even the effects over a few years. It comes from the programs' influence on lifelong pathways of development. Extension of the 4-H Study beyond the high school years will be needed to assess whether such longer-term influences exist.

Nevertheless there is great value in ascertaining if, during middle and high school, youth with a history of 4-H participation appear to be on a healthy trajectory and, if so, whether and how they differ from other youth.

4-H youth are more likely than other youth to show the lowest trajectories of depression.



Lines represent trajectory over time.

Effects of 4-H Participation

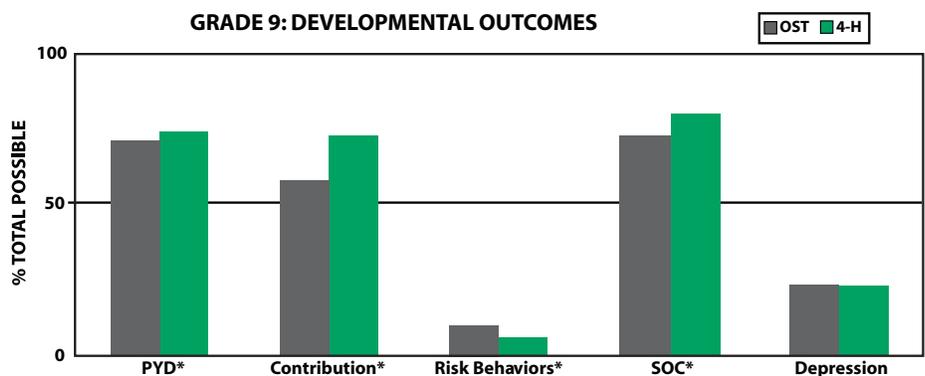
Cross-sectional and Longitudinal Findings

In the first Annual Report covering Waves 1-4, we presented the results of analyses aimed at ascertaining the relations between PYD and participation in 4-H clubs and 4-H after-school programs, compared to participation in other out-of-school-time (OST) activities. We made this comparison by matching youth who participated at least twice per month in 4-H programs to other youth who regularly participated in other OST activities. Matching was based on gender, race/ethnicity, rural/urban/suburban community, parental participation in the study, family per capita income, mother's education, and region of the country. These comparisons were made both cross-sectionally, among youth in Grades 6 and 8, and longitudinally, across Grades 5 to 8.

In this Annual Report covering Waves 1-5, we again present the results of both cross-sectional and longitudinal analyses. For the cross-sectional analyses, we use the Grade 9 (Wave 5) sample of

4-H youth (N = 215) matched with 215 youth who are not 4-H youth. Matching was based on gender, race/ethnicity, rural/suburban/urban community, number of parents in the home, family per capita income, mother's education, and region of the country. For the longitudinal analyses, we report the results of analyses across Grades 5 to 9 (Waves 1 to 5). These analyses involve 481 youth in the 4-H sample and the same number of youth in the matched, comparison group sample.

Among ninth graders, we found that, in comparison to the matched sample, 4-H participants had consistently higher scores on each of the developmental outcomes—PYD, Contribution, and SOC—and lower scores on measures of risk/problem behaviors. All the differences were statistically significant, except for depression. Notably, the 4-H youth were 25% higher on the Contribution measure than were youth who participated in other OST activities. In addition, the 4-H participants were 41% lower on the risk/problem behavior measure than were the comparison youth.



4-H youth were 25% higher on the Contribution measure and 41% lower on the risk/problem behavior measure than youth who participated in other OST activities.

Statistically significant differences: * $p < .05$

On the educational measures, the 4-H participants had better grades, were more behaviorally and emotionally engaged with school, and were more likely to see themselves going to college. Specifically, the respective odds that 4-H youth have "B and above" grades, have high academic competence, and expect to go to college are 2.05, 1.58, and 1.43 times higher than for comparison youth.

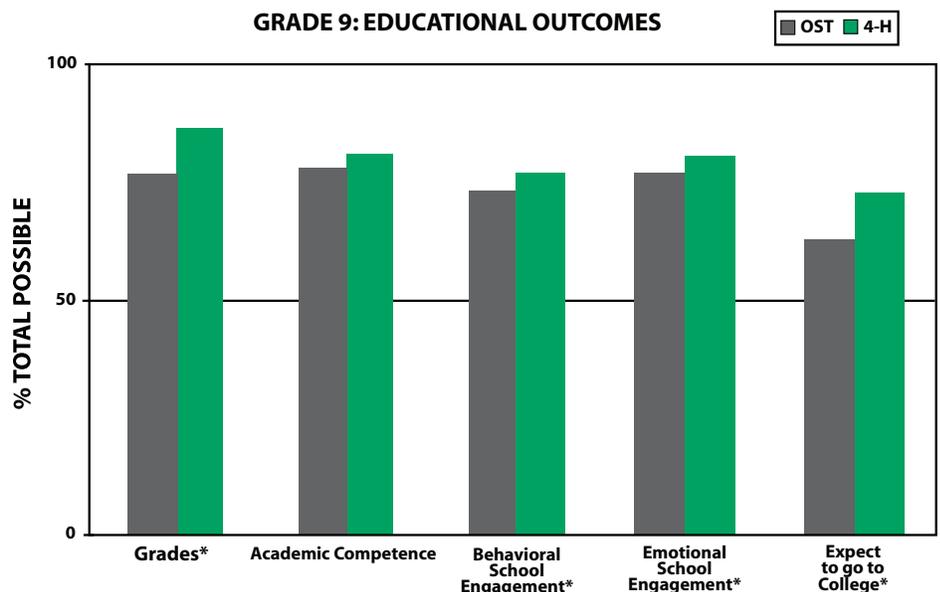
This difference may occur because 4-H youth are more engaged with school than are

other youth and may be more likely to see their future as involving college than do other youth. What is the importance of these differences? We believe that greater achievement, engagement, and motivation for further education should combine to enhance the likelihood that 4-H youth, more than other youth, will remain in high school, graduate, and go to college. We will be able to test this hypothesis only if the 4-H Study is extended beyond the 12th grade, when it currently is scheduled to end. It may be

that 4-H participation inoculates youth against dropping out of high school at rates greater than other OST programs. Given the importance of understanding how to prevent high school students from dropping out, continuing the 4-H Study so that this hypothesis can be tested is critical.

Why do these advantages exist for 4-H youth? Several explanations are available but one, we believe, is key: 4-H youth appear to have higher levels of the developmental assets

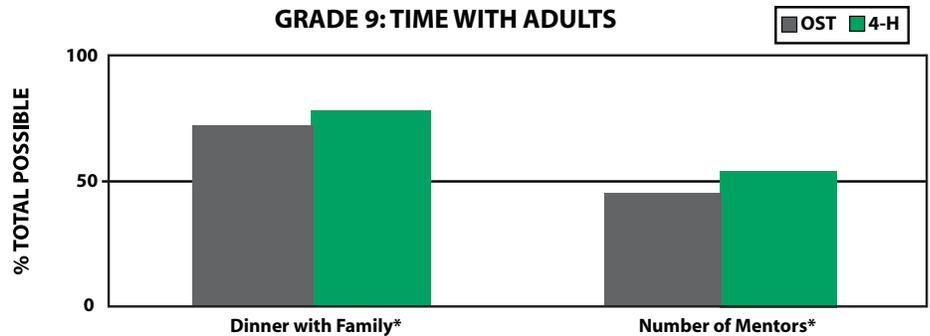
4-H participants had better grades, were more behaviorally and emotionally engaged with school, and were more likely to see themselves going to college.



Statistically significant differences: * $p < .05$

that the 4-H Study has found most important in promoting PYD—other individuals and, in particular, caring, competent, and committed adults, including parents, teachers, and mentors (Theokas & Lerner, 2006).

The longitudinal participants showed a similar pattern. 4-H participants in the longitudinal sample reported significantly higher levels of contribution than among the matched comparison group. The 4-H youth reported significantly better grades than youth who were involved in other OST activities and were more significantly likely to expect themselves to go to college. The respective odds that 4-H longitudinal youth have better grades, higher levels of academic competence, and expect to go to college are 1.76, 1.68, and 1.70 times higher than for comparison youth. In turn, the odds that longitudinal 4-H youth are involved in risk/problem behaviors were 0.63 times lower than for youth who participated in other OST activities, a significant difference.



In grade 9, most measures of the positive developmental and educational outcomes were significantly higher among 4-H participants.

The advantages of 4-H participation for contribution, educational achievement, and motivation for further education are robust across the cross-sectional and longitudinal samples—and speak to the continuity of advantages enjoyed by 4-H youth in the key domains of individual thriving and community contribution.

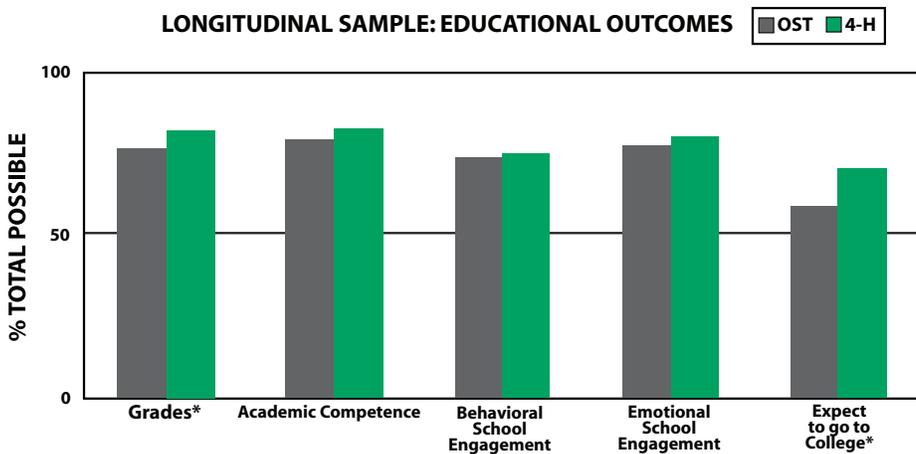
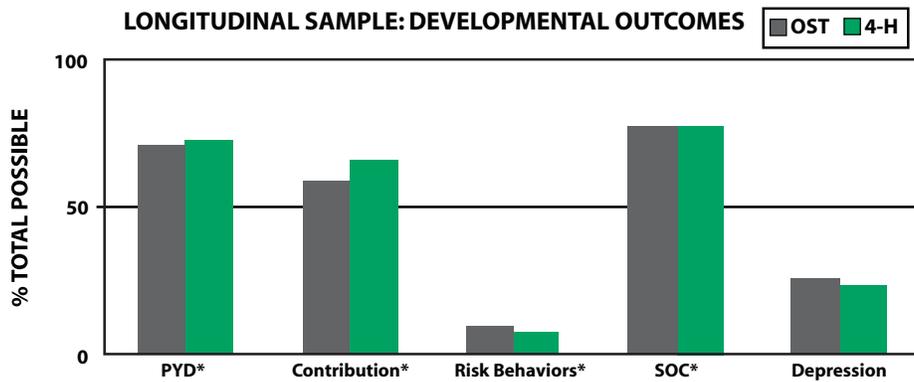
Some of the differences between the 4-H and other youth that were found in Grade 9 were

not evident when change across Grades 5 to 9 was considered. One reason for this difference may be that different sub-samples of youth were involved in the two sets of analyses. In turn, some of the advantages of 4-H participation for youth may only be emerging in mid-adolescence. Future analyses from subsequent waves of data from the 4-H Study will be aimed at testing this interpretation.

The advantages of 4-H participation for contribution, educational achievement, and motivation for further education are robust across the cross-sectional and longitudinal samples.

Statistically significant differences: * $p < .05$

4-H youth appear to have higher levels of the developmental assets that the 4-H Study has found most important in promoting PYD.



For the longitudinal sample, 4-H youth had higher contribution scores and higher grades than comparison youth. Their expectations to go to college were also higher.

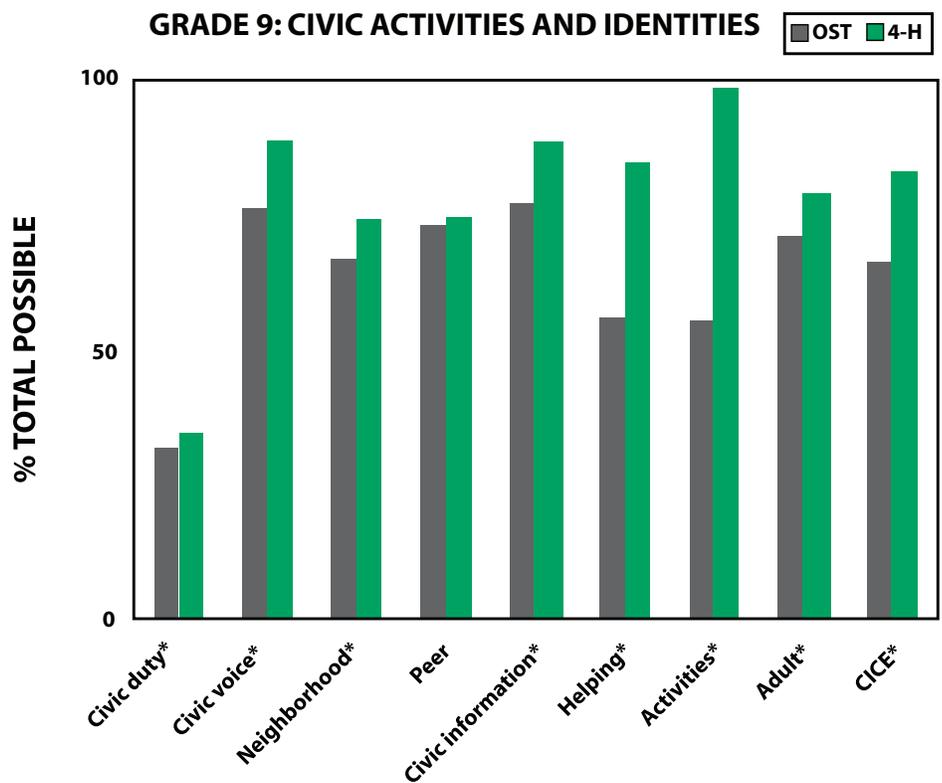
Statistically significant differences: * $p < .05$

In regard to youth civic identity and civic engagement (CICE), Grade 9 youth in 4-H scored higher than comparison youth on all eight factors of the civic identity and engagement construct and overall CICE with only one non-significant difference. For the longitudinal sample, participants in 4-H programs had significantly higher scores on five of the eight factors, as well as on the overall CICE, compared to youth who were involved in other programs. (For the remaining two factors, 4-H youth had higher scores but the differences were not statistically significant.)

The eight different factors in an overall CICE score are:

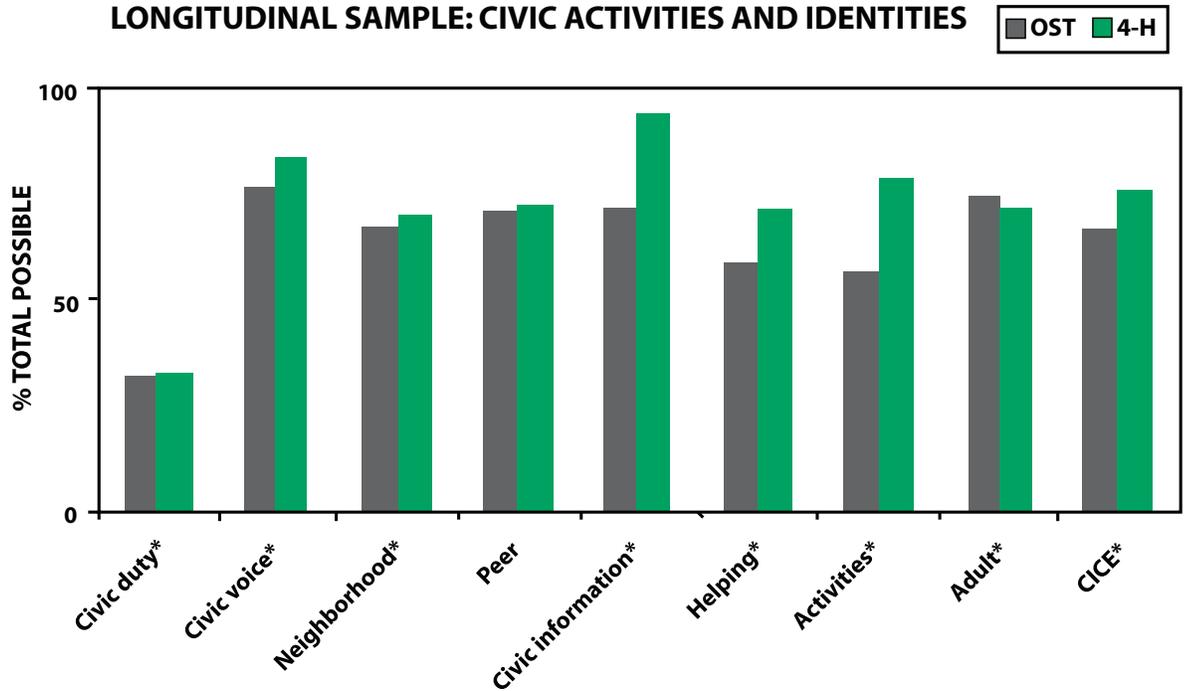
- Neighborhood social capital/social trust – mutually beneficial relations, trust, and bonding with other people in the community
- Peer social capital/social trust – mutually beneficial relations, trust, and bonding with friends and classmates

- Adult social capital/social trust – mutually beneficial relations, trust, and bonding with adults and teachers
- Civic duty – a sense of obligation to something larger than oneself
- Civic information – a commitment to gathering political and civic knowledge
- Civic voice – the ability to express oneself about community issues
- Civic helping – time spent helping others in informal settings, such as helping a neighbor
- Civic activities – time spent in formal activities giving back to others, such as volunteering, tutoring, serving in a civic organization, participating in student government



Statistically significant differences: * $p < .05$

LONGITUDINAL SAMPLE: CIVIC ACTIVITIES AND IDENTITIES



Coupled with our findings that 4-H participation in Grades 5 to 9 is linked to greater youth community contributions, both cross-sectionally and longitudinally, these findings with CICE tell a powerful story about the civic lives of 4-H participants.

From early adolescence through at least initial portions of mid-adolescence (Grade 9), 4-H youth are more civically active and make more community and civic contributions than do youth participants in other OST activities.

From grades 5 through 9, 4-H youth are more civically active and make more community and civic contributions than youth in other OST activities.

Statistically significant differences: * $p < .05$

Effects of Health Rocks![®]

To follow up on the first Annual Report of our findings in regard to Health Rocks! (HR!) participation among youth in the 4-H Study, we compared ninth grade youth who had participated in HR! at some point in Grades 5 to 8 (N = 426) with a matched sample of youth who had never participated in HR! (N also = 426). Matching was based on gender, race/ethnicity, rural/urban/suburban community, parental participation in the study, family per capita income, mother's education, and region of the country.

As shown in the first table, the two groups of youth do not differ in regard to smoking-related behaviors, except in regard to one key variable: HR! youth are more than twice as likely to have friends who pressure them to smoke. Given the increased salience of the peer group in adolescence

and the potential influence of their peers to elicit *greater* levels of engagement in smoking behaviors, HR! youth show no greater propensity for smoking-related behaviors than do the youth in the matched sample. It may be, then, that HR! participation provides a continuing "inoculation" against such risky behaviors, even into the ninth grade.

Moreover, the resistance of HR! youth to peer pressure to smoke exists even though these young people show evidence of greater internalizing problems (depression) than do comparison youth (see Developmental and Educational Measures table). Resisting their peers might take a toll on the HR! youth. Nevertheless, on other developmental and educational measures the HR! youth do not differ from the comparison youth.

In sum, although HR! youth indicate they may feel more pressure to smoke, HR! participation enables them to behave comparably to youth whose peer pressure to smoke is lower. Will this inoculation effect exist throughout adolescence? What long-term health benefits of HR! participation may exist at the end of adolescence and into the young adult years? Future analyses of data from the later waves of the 4-H Study will enable us to address these questions.

Health Rocks![®] may inoculate youth against peer pressure to smoke: Despite being twice as likely than comparison youth to have peers who pressure them to smoke, Health Rocks![®] youth do not differ from comparison youth in smoking-related behaviors.

Smoking Attitudes and Behaviors

	No HR!	Had HR!
<i>Smokers in the home</i>	34%	29%
<i>Expect to smoke in the future</i>	7%	6%
<i>Approve of peers smoking</i>	24%	30%
<i>Have pressure from peers to smoke*</i>	10%	22%
<i>Have close friends who smoke</i>	97%	97%
<i>Smoke yourself</i>	6%	8%

Developmental and Education Measures

	No HR!	Had HR!
<i>No risk/delinquency</i>	42%	36%
<i>Low depression*</i>	72%	60%
<i>High grades</i>	64%	56%
<i>High academic competence</i>	71%	61%
<i>Expect to graduate from college</i>	67%	61%
<i>High school engagement</i>	2%	1%
<i>High SOC</i>	48%	52%
<i>No substance use</i>	73%	64%
<i>Optimal contribution trajectory</i>	29%	29%
<i>Optimal risk/delinquency trajectory</i>	56%	57%
<i>Optimal depression trajectory*</i>	77%	65%
<i>Optimal PYD trajectory</i>	71%	66%

* Indicates significant difference between youth who have never had HR! versus those who have had HR!

Additional recent findings from the 4-H Study

Since publication of the first Annual Report in spring 2008, several additional findings have been published or placed in press. In this section, we summarize these new contributions to the literature of youth development.

More Than Child's Play: Variable- and Pattern- Centered Approaches for Examining Effects of Sports Participation on Youth Development

In an article forthcoming in *Developmental Psychology*, Nicole Zarrett, Kristen Fay, Jennifer Carrano, Yibing Li, Erin Phelps, and Richard M. Lerner used data from Grades 5 through 7 of the 4-H Study to assess the relations among sports participation, other out-of-school-time (OST) activities, and indicators of youth development. These relations were assessed through a mixture of variable- and pattern-centered analyses. The statistical approach was aimed at disentangling different features of participation such as intensity and breadth. The benefits of sports participation were found to partially depend on specific combinations of multiple activities included

along with sports. In particular, participation in a combination of sports and youth development (YD) programs was related to PYD and youth contribution, even after controlling for the total time youth spent in OST activities and the duration of their sports participation. Adolescents' total time spent participating in OST activities, duration of participation in sports, and activity participation pattern each explained a unique part of the variance in some of the indicators of youth functioning. These findings suggest the need for future research to assess simultaneously multiple indices of OST activity participation.



Use of Missing Data Methods in Longitudinal Studies: Current Practices in Developmental Psychology

In an article forthcoming in *Developmental Psychology*, Helena Jeličić, Erin Phelps, and Richard M. Lerner note that developmental science rests on describing, explaining, and optimizing intra-individual changes and requires longitudinal research, such as the 4-H Study. However, problems of missing data arise in most longitudinal studies, creating challenges for interpreting the substance and structure of intra-individual change. Using a sample of reports of longitudinal studies obtained from three flagship developmental journals — *Child Development*, *Developmental Psychology*, and *Journal of Research on Adolescence* — the authors examined the number of longitudinal studies reporting missing data and the missing data techniques used. Of the 100 longitudinal studies sampled, 57 either reported having missing data or had discrepancies in sample sizes reported for different analyses. The majority of these studies (82%) used missing data techniques that are statistically problematic, either through listwise deletion or pairwise deletion, and are not recommended by statisticians (i.e., the direct maximum likelihood method and the multiple imputation method). The authors discuss the need for understanding the consequences of using statistically inappropriate missing data techniques with actual longitudinal data sets, such as the 4-H Study.

Academic Competence for Adolescents Who Bully and Who are Bullied

In an article forthcoming in the *Journal of Early Adolescence*, Lang Ma, Erin Phelps, Jacqueline V. Lerner, and Richard M. Lerner used fifth and sixth grade (Wave 1 and Wave 2) data from the 4-H Study to bring new information to the relation between school bullying and adolescent academic competence, making it important to explore what factors promote such competence for adolescents who bully and who are bullied. The role of contextual and individual variables linked to academic competence were examined in the context of bullying by computing longitudinal random effects hierarchical regression analyses with a subsample of 620 adolescents. The results indicated that being a bully negatively impacted academic competence above and beyond the adolescents' demographic background, including sex and maternal education, and prior year academic competence. Concurrent random effects hierarchical regression analyses of a subsample of 250 adolescents suggested that educational expectations and school engagement interacted in fostering academic competence for bullies and victims. These findings highlight the importance of addressing the issue of academic competence in bullying interventions, and the utility of capitalizing on educational expectations and school engagement in promoting academic competence among adolescents who bully and who are bullied.

Positive Development in Adolescence: The Development and Role of Intentional Self-Regulation

In an article published in *Human Development*, Steinunn Gestsdóttir and Richard M. Lerner discussed the role of intentional self-regulation in the positive development of adolescence. They noted that adolescence is a period of marked change in cognitive, physical, psychological, and social development and in relations with the people and social institutions, and that these changes place demands to adapt on adolescents. Adaptation involves developmental regulation, in which relations between the adolescent's action and the context flow back and forth. The attributes and means through which the adolescent contributes to such regulation may be termed self-regulation. This article differentiates between organismic and intentional self-regulation and examines the development of intentional self-regulation in adolescence, and the individual and contextual contributions to its development. The model of Selection, Optimization, and Compensation (SOC), developed by Paul Baltes, Margaret Baltes, and Alexandra Freund, is used to conceptualize and index intentional self-regulation in adolescence, and the relation between intentional self-regulation and positive development of youth is discussed. This relation is subsequently tested in several studies conducted with the 4-H Study data set.

Intentional Self-regulation in Early Adolescence: Assessing the Structure of Selection, Optimization, and Compensation Processes

In an article published in the *European Journal of Developmental Science*, Stacy M. Zimmerman, Erin Phelps, and Richard M. Lerner used data from Grades 5, 6, and 7 of the 4-H Study to assess the role of intentional self-regulation in the positive development of young adolescents. These relations were examined through use of the Selection, Optimization, and Compensation (SOC) measure, developed by Paul B. Baltes and Alexandra Freund. Consistent with findings published in *Developmental Psychology* in 2007 by Steinunn Gestsdóttir and Richard M. Lerner, the results of confirmatory factor analyses of SOC scores suggested the use of a global, nine-item index. Results of hierarchical linear modeling indicated that statistically significant but substantively minor changes in SOC scores existed across the three grades. These findings support the use of the Grade 5 SOC scores as predictors of subsequent development. Accordingly, Grade 5 SOC scores positively predicted Grade 7 scores on the Five Cs of PYD—competence, confidence, character, connection, and caring—and negatively predicted Grade 7 depression, delinquency, and risk behaviors. No gender effects were found in regard to changes in SOC scores.

Positive and Negative Developmental Trajectories in U.S. Adolescents: Where the PYD Perspective Meets the Deficit Model

In an article in *Research in Human Development*, Stacy M. Zimmerman, Erin Phelps, and Richard M. Lerner used data from Grades 5, 6, 7, and 8 of the 4-H Study to assess the patterns of change associated with indicators of PYD, contribution, and risk/problem behaviors among 1,909 youth. In addition, the role of intentional self-regulation—as indexed by the Selection, Optimization, and Compensation (SOC) measure of the Freund and Baltes (2002)—in determining which developmental paths youth follow was examined. Results indicated that five PYD trajectories represent change across grades, four trajectories were associated with indicators of youth contribution, four trajectories were associated with indicators of depressive symptoms, and three trajectories were associated with indicators of risk/problem behaviors. Binomial logistic regression results indicated that youth with higher SOC scores were significantly more likely to be in the most favorable trajectory for each of the outcome measures.

Patterns of Early Adolescents' Participation in Youth Development Programs Having Positive Youth Development Goals

In a paper forthcoming in the *Journal of Research in Adolescence*, Aida Balsano, Erin Phelps, Christina Theokas, Jacqueline V. Lerner, and Richard M. Lerner noted that theory and research suggest that structured, out-of-school-time (OST) activities, and in particular youth development programs aimed at promoting positive youth development (PYD), are key developmental assets for such development. Using longitudinal data from 945 fifth and sixth graders participating in the 4-H Study, initial descriptive information about early adolescent participation in youth programs having or not having PYD goals was presented. Within each grade, early adolescents participated in multiple programs (overall mean for Grades 5 and 6 are 3.8 and 2.9, respectively). In Grades 5 and 6, 44.1% and 35.8% of youth, respectively, participated in PYD-related programs, but typically in combination with other program types. Researchers and practitioners should consider implications for healthy early adolescent development of participation in multiple programs, only some of which seek to promote PYD.

Out-of-School-Time Activity Participation, School Engagement and Positive Youth Development: Findings from The 4-H Study of Positive Youth Development

In an article published in the *Journal of Youth Development*, Yibing Li, Neda Bebiroglu, Erin Phelps, and Richard M. Lerner studied the relations in early adolescence among out-of-school-time activities and indicators of youth development by using eighth grade data from the 4-H Study. Hierarchical multiple linear regressions indicated that “hanging out” with friends without set plans and excessive media use were associated with lower behavioral engagement with school, lower academic achievement, and higher rates of risk behaviors. Youth who ate dinner with their families reported higher levels of emotional engagement, lower depression and risk behaviors, and better grades. Engagement in civic activities was associated with higher levels of emotional engagement. Behavioral and emotional engagement both were associated with better grades and lower depression. Emotional school engagement also was associated with lower rates of risk behaviors. Implications of the findings for evaluating the role of out-of-school-time activities and behavioral and/or emotional school engagement in academic achievement and youth development are discussed.

We’re Here, We’re Hopeful, and We Can Do Well: Conceptions and Attributes of Positive Youth Development among Immigrant Youth

In a forthcoming issue of the *Journal of Youth Development*, Yulika Forman, Megan Kiely, Dan Du, Jennifer Carrano, and Richard Lerner used qualitative and quantitative information from Grades 8 and 9 of the 4-H Study to describe the conceptions of thriving youth present within adolescent immigrants to the United States, and interrelate these conceptions with quantitative scores for PYD, contribution, and positive future orientation. Conceptions of thriving that included positive future orientation were associated with higher quantitative scores for PYD and Contribution. Conceiving of thriving as making contributions to themselves or their communities was associated with higher quantitative scores for Contribution. These findings suggest that immigrant youth whose qualitative definitions of thriving include the U.S.-based conceptions of PYD show quantitative evidence of positive functioning. The limitations of the study and directions for future research were discussed.

Problematics of Time and Timing in the Longitudinal Study of Human Development: Theoretical and Methodological Issues

The study of human development involves the description, explanation, and optimization of intraindividual change and of interindividual differences in such change and requires the use of longitudinal research. Several types of longitudinal research can be used, and the selection of the appropriate instance of such designs requires both the use of the design that best addresses the theoretical questions about developmental process and the use of appropriate statistical procedures to best exploit the data derived from theory-predicated longitudinal research. In a paper published in *Human Development*, Richard M. Lerner, Seth Schwartz, and Erin Phelps focused on issues pertinent to theory-design fit, and noted that, to create such fit, several interrelated problematics involving the treatment of time and the timing of observations are faced by developmental scientists seeking to chart changes in developmental processes throughout life. Using data from the 4-H Study, they discussed the ways in which these problematics may be addressed in order to advance theory-predicated understanding of the role of time in processes of individual development.

Next steps for the study of PYD



In its first few years, this first-of-a-kind longitudinal study has already yielded important information about how PYD can launch young people into healthy and productive lives (Lerner, et al, 2005; Jeličić, Bobek, Phelps, Lerner, & Lerner, 2007). The findings have profound implications not only for the programs themselves, but also for public policy (Lerner, 2004).

From this study we have learned that youth programs cannot remain static; they must expand and change to address the diverse and changing needs and interests of adolescents and their families (Balsano, Phelps, Theokas, Lerner, & Lerner, in press; Theokas, Lerner, Lerner, & Phelps, 2006; Zarrett & Lerner, 2008). Youth programs must address both prevention and promotion; contrary to popular belief, focusing on one does not necessarily affect the other (Phelps, et al, 2007).

We are excited about the possibility of continuing this study through Grade 12 and beyond so that we can gather and analyze additional information to help the youth of today and tomorrow. By building upon and extending this longitudinal study, we will gain powerful and practical insights into what guides an adolescent into a productive and successful adulthood. We also will be able to determine which PYD assets are related to critical life events, such as completing high school, going to college, and successful entry into the workforce (Lerner, 2007).

If we are able to extend the 4-H Study beyond the high school years, we will provide previously unavailable information on how youth development programs such as 4-H can move adolescents onto a productive and healthy adulthood that benefits both children and their communities. Such knowledge would be of inestimable value for science, for practitioners, and for developing effective social policy.

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